

# A Clinically Rooted Approach to Knowledge Management in a large Italian Community Hospital

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## Abstract

*A strategy for Knowledge Management (KM) implementation in a large hospital involved three areas: intranet/internet technologies for professional practice standardization and communication; multiprofessional group building for sharing and discovering of social perspectives; learning opportunities targeted to high quality information sources and information mastering methods. A cooperative prototyping approach assured high levels of user's acceptance and involvement, and initial results are encouraging, but measuring and sustaining clinical practice changes will require additional efforts.*

## Background

Conventional approaches to KM in health care in the Western society encompass a cyclic process of competencies and performances measurement, standard setting, top-driven action planning and progress checking, with corporate websites offering information and services targeted to employees whose knowledge would be managed. This general model is impractical for large organizations with established clinical cultures and complex operative systems exposed to the dangers of knowledge and technology by-passes, and whose decisions are highly sensitive to political, social and economic pressures. Moreover, conventional approaches too often rely on off-the-shelves KM software, sometimes a shallow adaptation of industry applications, that need to be painfully integrated with existing and other ongoing applications.

## Methods

A distributed integrated KM system was planned, discussed with relevant (but only internal) stakeholders and gradually implemented in an acute care community hospital, 900 beds, that serves a population of around 250.000 people. The system involved:

1) information and communication technologies (ICT): a "Knowledge Centre" (KC) dynamic website with intranet, extranet and internet components built using standard tools (Linux operating system, Apache server, MySQL database, PHP programming language). A number of open source components were assembled. An asynchronous multiuser communication channel (KC Forum) supported

different levels of information sharing: from public dissemination of news and documents to private discussion on professional topics

2) inter-disciplinary and multiprofessional groups (EBM-EBN, i.e. Evidence-based Medicine and Nursing; Quality; Continuous Professional Learning) were formally recognized after a long effort of identifying relevant "champions" and potentially influent change actors. The EBM-EBN group is now experimenting with a distributed peer-to-peer agent-based prototypical KM tool (KEx<sup>1</sup>), in cooperation with IRST, Trento, Italy

3) learning activities focused on searching relevant bibliographic databases, appraising the clinical literature and managing change of practices in order to apply significant advances of clinical research<sup>2</sup> were started. Customer satisfaction questionnaires consistently scored high for the attending population (around one third of the 600 physicians, leading nurses and technicians).

## Results

The gradual and integrated implementation of ICT tools, social interaction opportunities and educational events resulted in a quick identification of "early adopters" and "early majority" populations. Team building helped to diffuse positive attitudes and was used mostly as a change predisposing factor. ICT tools and adult learning approaches were used both as enabling and as reinforcing factors. The KC is now perceived as a repository of institutional and professional knowledge. Ongoing collaboration with University of Udine is extending the KC functionality toward (1) a semantic (XML-RDF and terminology / shared context representation) restructuring of nurse's procedures reference book and hospital drug formulary, and (2) a personalization of the KC.

## References

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<sup>1</sup> Bonifacio M, Bouquet P, Mameli G, Nori M: KEx: a Peer-to-Peer solution for Distributed Knowledge Management. Lecture Notes in AI, Vo. 2569, pp.490-500, Springer Verlag, Heidelberg 2002

<sup>2</sup> Grandage KK, Slawson DC, Shaughnessy AF: When less is more: a practical approach to searching for evidence-based answers. J Med Libr Assoc 2002;90(3):298-304.